

## REMARKS

Receipt of the Office Action of August 1, 2003 is gratefully acknowledged.

Claims 1 - 10 are pending and these have been finally rejected as unpatentable under 35 USC 103(a) over Tanino et al '279. The rejection is stated in two parts. First, the examiner discussed claims 1 - 6, 9 and 10 and thereafter claims 7 and 8.

The rejection in both its parts is respectfully traversed.

In applying Tanino et al '279 against claims 1 - 6, 9 and 10, the examiner states that "[t]he sole difference between the instant claims and the prior art is the orientation of both layers." Applicants cannot agree. It bears repeating that according to the present invention, cutting occurs along different Miller index planes. The superimposed substrate and plane are, according to the present invention, heated in an inert gas atmosphere thereby forming a single crystal with a unique orientation relative to the cutting plane orientation. Tanino et al '279 is totally silent regarding this uniqueness.

Next the examiner states that "...in the absence of unexpected results, it would have been obvious.....to increase the uniformity of the crystal growth." Actually, the results achieved were unexpected. Note the discussion at the bottom of page 9 and the top of page 10 of the specification, wherein it is stated that by crystal X-ray analysis on samples of the single crystal SiC grown in accordance with the present invention, it was observed that "...the single crystal 4 grown in the polycrystalline  $\beta$ -SiC plate 2 is single crystal  $\alpha$  - (6H) - SiC which has the crystal orientation of the orientation of (1 1 2 0) in conformity with the single crystal  $\alpha$  - SiC substrate 1." **This was not expected.** It is also stated on page 10 that "....samples of the single crystal SiC were observed by a polarization microscope" and it was observed that "...no

micropipes M are produced in the single crystal portion 4 grown in the polycrystalline  $\beta$  - SiC plate 2.” *This was not expected.*

Submitted herewith are the declarations of the inventors, Messrs Kichiya Tanino and Yasutsugu Tanishita attesting to the fact that while they are familiar with the Miller indexes, they did not contemplate these indexes in any way other than as a tool in the development of the invention claimed herein. That is, the inventors are certainly to be considered individuals “skilled in the art,” and they are attesting to the fact that they did not consider using “different indexes to create different crystals,” as the examiner has concluded on page 3, line 17 of the noted Office Action, but as a tool to create a crystal and the method of growing the crystal according to which the superposition of the planes and the subsequent heat treatment of the crystal with the superposed planes produced unexpected results.

Note the discussion of the prior art on pages 1 - 4 of the present specification. This discussion acknowledges that cutting a crystal along Miller indices is known, and illustrates in Fig. 4 a crystal obtained by cutting using Miller indices. This discussion goes on to state that the quality of the resulting crystals obtained according to the known art is less than desirable, which is why the present invention was developed. Would an invention to an engine block with a unique design of the piston cylinder be considered obvious because engine blocks with piston cylinders are known? We think not. What must be shown to conclude that such an invention is unpatentable for obviousness would be a teaching of the unique design of the piston cylinder. Likewise here. Where the invention is not to the Miller index, but to a single crystal SiC and method, which uses the Miller index as a tool, the teaching to render the invention to the single crystal SiC and method unpatentable for obviousness must reside in something other than

the tool used, i.e., other than the Miller index. The teaching must show, it is respectfully submitted, the crystal orientation achieved by the superposition and heat treatment, which Tanino et al '279 does not show.

In applying Tanino et al '249 against claims 7 and 8, the examiner again basis his rejection on "absence of unexpected results." As noted above, unexpected results are achieved by the invention.

The emphasis on the Miller index and its role in the invention has, to some extent, distorted the proper focus in the examination of the claims presented. The examiner is urged to reconsider the noted rejections in view of the foregoing and the attached declarations and to advance a finding that claims 1 - 10 are allowed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Felix J. D'Amrosio', written over the printed name.

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